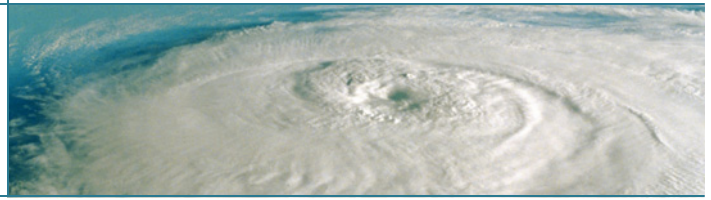


# Key Facts About Hurricane Recovery for Federal Responders



## Preventing Injury When Responding to Hurricane Katrina

Federal emergency responders will face a number of hazards associated with Hurricane Katrina rescue and cleanup activities. Use the following guidelines to prevent injury:

### Storing Food Safely

If unopened, a refrigerator will keep foods cool for about 4 hours without power. Thawed food can usually be eaten if it is still "refrigerator cold." Discard any food that has been at temperatures greater than 40 degrees Fahrenheit for 2 hours or more, and any food that has an unusual odor, color, or texture.

If the power is out for longer than 4 hours, follow these guidelines:

- Use dry ice, if available. Twenty-five (25) pounds of dry ice will keep a ten-cubic-foot freezer below freezing for 3-4 days. Use care when handling dry ice, and wear dry, heavy gloves to avoid injury.
- Pack milk, other dairy products, meat, fish, eggs, gravy, and spoilable leftovers into a cooler surrounded by ice. Discard this food if it is held at a temperature greater than 40 degrees Fahrenheit for more than 2 hours.
- If possible, use a digital quick-response thermometer to check the temperature of your food right before you cook or eat it. Throw away any food that has a temperature of more than 40 degrees Fahrenheit.

### Making Sure Your Water Is Safe

Hurricanes, especially if accompanied by a tidal surge or flooding, can contaminate the public water supply. Drinking contaminated water may cause illness. You cannot assume that the water in the hurricane-affected area is safe to drink.

Safe water for drinking, cooking, and personal hygiene includes bottled, boiled, or treated water. Here are some general rules concerning water in a disaster:

- Do not use contaminated water to wash dishes, brush your teeth, wash and prepare food, wash your hands, or make ice. If possible, use an alcohol-based hand sanitizer to wash your hands.
- If you use bottled water, be sure it came from a safe source. If you do not know that the water came from a safe source, you should boil or treat it before use.

Until your supply is tested and found safe, use only bottled, boiled, or treated water.

- Boiling water, when practical, is the preferred way to kill harmful bacteria and parasites. Bringing water to a rolling boil for 1 minute will kill most organisms.
- When boiling water is not practical, you can treat water with chlorine tablets, iodine tablets, or unscented household chlorine bleach (5.25% sodium hypochlorite):
  - If you use chlorine tablets or iodine tablets, follow the directions that come with the tablets.
  - If you use household chlorine bleach, add 1/8 teaspoon (~0.75 mL) of bleach per gallon of water if the water is clear. For cloudy water, add 1/4 teaspoon (~1.50 mL) of bleach per gallon. Mix the solution thoroughly and let it stand for about 30 minutes before using it.

Note: Treating water with chlorine tablets, iodine tablets, or liquid bleach will not kill parasitic organisms.

- Use a bleach solution to rinse water containers before reusing them. Use water storage tanks and other types of containers with caution. For example, fire truck storage tanks and previously used cans or bottles may be contaminated with microbes or chemicals. Do not rely on untested devices for decontaminating water.
- Flood waters may contain fecal material from overflowing sewage systems and agricultural and industrial waste. Although skin contact with floodwater does not, by itself, pose a serious health risk, there is risk of disease from eating or drinking anything contaminated with floodwater.

## **Wear Protective Gear**

- For most work in flooded areas, wear hard hats, goggles, heavy work gloves, and watertight boots with steel toe and insole (not just steel shank).
- Wear earplugs or protective headphones to reduce risk from equipment noise. Equipment such as chain saws, backhoes, and dryers may cause ringing in the ears and subsequent hearing damage.

## **Beware of Electrical Hazards**

Electrical power and natural gas or propane tanks should be shut off to avoid fire, electrocution, or explosions until it is safe to use them. Use battery-powered flashlights and lanterns, rather than candles, gas lanterns, or torches. If you smell gas or suspect a leak, turn off the main gas valve, open all windows, and leave the building immediately. Notify the Joint Field Office (JFO). Do not turn on the lights or do anything that could cause a spark.

- If water has been present anywhere near electrical circuits and electrical equipment, turn off the power at the main breaker or fuse on the service panel.

Do not turn the power back on until electrical equipment has been inspected by a qualified electrician.

- Never enter flooded areas or touch electrical equipment if the ground is wet, unless you are certain that the power is off. NEVER handle a downed power line.
- When using gasoline and diesel generators to supply power to a building, switch the main breaker or fuse on the service panel to the "off" position prior to starting the generator.
- If clearing or other work must be performed near a downed power line, contact the JFO to discuss de-energizing and grounding or shielding of power lines. Extreme caution is necessary when moving ladders and other equipment near overhead power lines to avoid inadvertent contact.

## Power Line Hazards and Cars

Avoid any downed power lines, particularly those in water.

If a power line falls on a car, you should stay inside the vehicle. This is the safest place to stay. Warn people not to touch the car or the line. Call or ask someone to call the JFO, local utility company, and emergency services.

The only circumstance in which you should consider leaving a car that is in contact with a downed power line is if the vehicle catches on fire. Open the door. Do not step out of the car. You may receive a shock. Instead, jump free of the car so that your body clears the vehicle before touching the ground. Once you clear the car, shuffle at least 50 feet away, with both feet on the ground.

Do not try to help someone else from the car while you are standing on the ground.

As power returns after an outage, there is a risk of electrical or traumatic injuries as power lines are reenergized and equipment is reactivated. First responders must be aware of those risks and take protective steps if they are in contact with or in proximity to power lines, electrical components, and the moving parts of heavy machinery. More information on electrical safety is available at

[www.cdc.gov/niosh/injury/traumaelec.html](http://www.cdc.gov/niosh/injury/traumaelec.html)

## First Aid for Electrical Shock

If you believe someone has been electrocuted take the following steps:

1. Look first. Don't touch. The person may still be in contact with the electrical source. Touching the person may pass the current through you.
2. Call or have someone else call 911 or emergency medical help.
3. Turn off the source of electricity if possible. If not, move the source away from you and the affected person using a nonconducting object made of cardboard, plastic or wood.

4. Once the person is free of the source of electricity, check the person's breathing and pulse. If either has stopped or seems dangerously slow or shallow, begin cardiopulmonary resuscitation (CPR) immediately.
5. If the person is faint or pale or shows other signs of shock, lay the person down with the head slightly lower than the trunk of his or her body and the legs elevated.
6. Don't touch burns, break blisters, or remove burned clothing. Electrical shock may cause burns inside the body, so be sure the person is taken to a doctor.

## Avoid Hazardous Materials

Flood waters can dislodge tanks, drums, pipes, and equipment, which may contain hazardous materials such as pesticides or propane.

- Do not attempt to move unidentified dislodged containers without first contacting the local fire department or hazardous materials team.
- If any propane tanks (whether 20-lb. tanks from a gas grill or household propane tanks) are discovered, do not attempt to move them yourself. These represent a very real danger of fire or explosion, and if any are found, notify the appropriate JFO.
- Car batteries, even those in flood water, may still contain an electrical charge and should be removed with extreme caution by using insulated gloves. Avoid coming in contact with any acid that may have spilled from a damaged car battery.
- If working in potentially contaminated areas, avoid skin contact or inhalation of vapors by wearing appropriate protective clothing and respirators.
- Frequently and thoroughly wash skin areas that may have been exposed to pesticides and other hazardous chemicals.

## Avoid Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas that can cause sudden illness and death if you breathe it. When power outages occur during emergencies, many people try to use alternative sources of fuel or electricity for cooling or cooking. CO from these sources can build up in the home, garage, or camper and poison the people and animals inside.

During disaster cleanup, operate all gasoline-powered devices such as pumps, generators, and pressure washers outdoors and never bring them indoors. This will help to ensure your safety from carbon monoxide poisoning. Never use generators, grills, camp stoves, or other gasoline, propane, natural gas, or charcoal-burning devices inside a building.

## Prevent Musculoskeletal Injury

Special attention is needed to avoid back injuries associated with manual lifting and handling of debris and building materials. To help prevent injury:

- Use teams of two or more to move bulky objects
- Avoid lifting any material that weighs more than 50 pounds (per person)
- Use proper automated-assist lifting devices

## Beware of Structural Instability

Never assume that water-damaged structures or ground are stable. Buildings that have been submerged or have withstood rushing flood waters may have suffered structural damage and could be dangerous.

- Don't work in or around any flood-damaged building until it has been examined and certified as safe for work by a registered professional engineer or architect.
- Assume all stairs, floors, and roofs are unsafe until they are inspected.
- Leave immediately if shifting or unusual noises signal a possible collapse.

## Be Prepared for Fires

Fire can pose a major threat to an already badly damaged flood area for several reasons:

- Inoperative fire protection systems
- Hampered fire department response
- Inoperable firefighting water supplies
- Flood-damaged fire protection systems

At least two fire extinguishers, each with a UL rating of at least 10A, should be provided at every cleanup job.

## Prevent Drowning

Do not try to wade or drive through standing flood waters. Moving water 6 inches deep can sweep a person off their feet. Water standing 18 inches deep can carry a vehicle away.

## Extreme Heat

Be aware of the risk for heat stroke, heat exhaustion, heat cramps, and fainting. To avoid heat stress, you should:

- Drink a glass of fluid every 15 to 20 minutes and at least one gallon each day.
- Avoid alcohol and caffeine. They both dehydrate the body.

- Wear light-colored, loose-fitting clothing.
- When indoors without air conditioning, open windows if outdoor air quality permits and use fans.
- Take frequent cool showers or baths.
- If you feel dizzy, weak, or overheated, go to a cool place. Sit or lie down, drink water, and wash your face with cool water. If you don't feel better soon, get medical help quickly.
- Work during cooler hours of the day when possible, or distribute the workload evenly throughout the day.

Heat stroke is the most serious heat illness. It happens when the body can't control its own temperature and its temperature rises rapidly. Sweating fails and the body cannot cool down. Body temperature may rise to 106°F or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency care is not given.

Warning signs of heat stroke vary but can include:

- Red, hot, and dry skin (no sweating)
- Rapid, strong pulse
- Throbbing headache
- Dizziness, nausea, confusion, or unconsciousness
- An extremely high body temperature (above 103°F)

If you suspect someone has heat stroke, follow these instructions:

- Immediately call for medical attention.
- Get the person to a cooler area.
- Cool the person rapidly by immersing him/her in cool water or a cool shower, or spraying or sponging him/her with cool water. If the humidity is low, wrap the person in a cool, wet sheet and fan him/her vigorously.
- Monitor body temperature and continue cooling efforts until the body temperature drops to 101-102°F.
- Do not give the person alcohol to drink. Get medical assistance as soon as possible.
- If emergency medical personnel do not arrive quickly, call the JFO for further instructions.

For more information on heat-related illnesses and treatment, see the CDC Web page on "Extreme Heat." <http://www.bt.cdc.gov/disasters/extremeheat/index.asp>

Information for workers can be found on the NIOSH Web page, "Working in Hot Environments." <http://www.cdc.gov/niosh/hotenvt.html>

## If Injury Occurs

Report all injuries to the nurse in the JFO.

## How to Cope with Stress

Disasters such as a hurricane can result in extreme emotions including stress, helplessness, fear, irritability, anger and depression, first responders are not immune. You may also suffer from nightmares, shock, loss of appetite and the inability to concentrate. All of these reactions and feelings are normal; but if left unaddressed, they can jeopardize your health. If you feel any of these symptoms, do not hesitate to get help. Contact the Employee Assistance Program (EAP), nurse, or appropriate JFO. In addition, consider the following tips:

- Have realistic expectations and goals, and be patient with yourself
- Reach out to supportive friends and family for comfort and guidance
- Give yourself plenty of time to recover and rest
- Try to maintain a nutritious diet to keep your energy up
- Focus on your breathing—deep, slow breaths will help calm you

## Dealing with Wild and Domestic Animals in a Disaster

Many wild animals have been forced from their natural habitats by flooding, and many domestic animals are without homes after a flood. Take care to avoid these animals. Do not corner an animal. If an animal must be removed, contact your local JFO. If you are bitten by any animal, seek immediate medical attention. If you are bitten by a snake, if possible, identify the type of snake so that, if poisonous, the correct anti-venom may be administered.

Wild and domestic animals may escape or be killed in disasters. Escaped animals may wander onto land where they could:

- contaminate water supplies
- cause a build-up of manure
- overgraze sensitive ecosystems

Decaying carcasses create biologic waste and attract flies and rodents, which can spread disease. They may also contaminate groundwater and cause bad odors. Animal carcasses should be disposed of as soon as possible to avoid creating a health hazard to animals or humans.

For more information about the health risks posed by animals, see the following: CDC Rabies website <http://www.cdc.gov/ncidod/dvrd/rabies/>

Rat-Bite Fever: Frequently Asked Questions

[http://www.cdc.gov/ncidod/dbmd/diseaseinfo/ratbitefever\\_g.htm](http://www.cdc.gov/ncidod/dbmd/diseaseinfo/ratbitefever_g.htm)

## Hand Washing in Emergency Situations

After an emergency, it can be difficult to find running water. However, to avoid illness it is very important to wash your hands. It is best to wash your hands with soap and water. When water isn't available, use alcohol-based products made for hand washing. Avoid hand to mouth activities such as smoking, chewing tobacco, or putting your fingers to your mouth.

## Preventing Insect and Nuisance Bites

In 7 – 10 days after a hurricane, mosquito larvae will begin to hatch. The following are some tips for avoiding insect bites:

- When you are outdoors, use insect repellents containing DEET (N, N-diethyl-meta-toluamide) or Picaridin. Follow the directions on the package. More information about these and other recommended repellents can be found in the fact sheet: Updated Information Regarding Insect Repellents - <http://www.cdc.gov/ncidod/dvbid/westnile/RepellentUpdates.htm>
- Many mosquitoes are most active at dusk and dawn. Be sure to use insect repellent and wear long sleeves and pants at these times or consider staying indoors during these hours. Light-colored clothing can help you see mosquitoes that land on you.

## Be Prepared

It is important to have an emergency plan that encompasses a disaster supply kit. This kit should include emergency supplies such as food and water, flashlights, batteries, first-aid supplies, prescription medicines, and a digital thermometer. Use battery-powered flashlights and lanterns, rather than candles, gas lanterns, or torches (to minimize the risk of fire). You can find more information on emergency plans and supply kits at [www.ready.gov](http://www.ready.gov).